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| EXAMINER | |
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| HEIDEMANN, JASON E | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/593,359 | KOKUBUN ET AL. | |
| | Examiner | Art Unit | |
| | Jason Heidemann | 2624 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *23 November 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-8,10-13,16,17,20 and 22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,10-13,16,17,20 and 22* is/are rejected.

7)☒ Claim(s) *6-8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 February 2010* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/01/2010*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## *General Information Matter*

Applicant filed Amendment on 11/23/2010 for application 10/593359 canceling 21. Currently, Claims 1-8, 10-13, 16, 17, 20, and 22 are pending.

## *Continued Examination under 37 CFR 1.114*

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/01/2010 has been entered.

## *Response to Amendment*

The amendment received 11/23/2010 has been entered and considered in full.

## *Response to Arguments*

### *35 USC § 119 Comments*

Applicant's remarks are persuasive, the Flohr (US Patent Publication 2005/0058238 A1) reference is not prior art due to the perfection of applicants' priority claim through submission of an English translation of their Japanese priority application (JP2004-080939; filed on March 19, 2004) - *MPEP 201.13.* Applicant has provided sufficient evidence that each claim finds support in the foreign document (See Applicant's arguments, pages 8-14)

### *35 USC § 102/103*

- Claims 1-3, 11-13, 16, 20 and 21 were rejected over Yavuz et al. (US Patent 6,539,074) in view of Flohr et al.; and

- Claims 4, 5, 10, and 17 were rejected over Yavuz et al., Flohr et al., and further in view of a Siemens Medical Heart View Application Guide.

Due to Applicant's arguments and perfection of applicants' priority claim, see pages 8-14, filed 11/23/2010, with respect to the claims have been fully considered and are persuasive. The rejection of all pending claims has been withdrawn. However, upon further consideration, a new ground(s) of rejection are made in view of Pan (WO 02/26135).

The Examiner believes that all the arguments of the Applicant(s) have been properly addressed and explained.

***Priority***

This application claims benefit of foreign priority under 35 U.S.C. 119(a-d) of a Japanese patent applications, JP 2004-080939, filed March 19, 2004 and JP 2004-110756, filed April 5, 2004.

**Specification**

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### *Information Disclosure Statement*

The information disclosure statement (IDS) submitted on 12/01/2010 is in compliance with the provisions of 37 C.F.R. *§* 1.97. Accordingly, the examiner has considered all references cited in the submitted IDS.

### Examiner's Note

Examiner has cited particular columns and line numbers or figures in the references as applied to the claims below for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant, in preparing the responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

### Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

***A.) Claims 1-3, 11-13, 16, and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yavuz et al. (US Patent # 6,539,074 hereinafter Yavuz) in view of Pan (WO 02/26135, hereinafter Pan). Pan was provided by applicant in an IDS filed on 09/18/2006***

As to Claim 1, Yavuz discloses an image data collection control method for collecting multiple pieces of image data from an image data collection range including a periodically moving part of an object to be examined (***Yavuz, abstract), Fig. 10***), the method comprising:

a step of obtaining periodic motion data indicating a change of a periodic motion with time (***Yavuz, Fig.5, Column 10, Lines 1-52, Column 11, Lines 4-10, Columns 2, Lines 5-15, 32-44, 53-59, Column 8, Lines 19-30 the EKG data is collected which provides time info that indicates a change in periodic motion, which allow the sensor to acquire correlated images of a heart beating (periodic motion), the data***

***collected represents the heart in all difference phases of the cardiac cycle (periodic motion with time)***);

a step of obtaining a time range so that the time resolution is within the desired range on an image data collection condition based on the periodic motion data (***Yavuz, Fig.5, Column 10, Lines 43-67, and Column 11, Lines 4-10 the collection time of the electrocardiographic data is correlated to the EKG (periodic motion) which provides time info regarding which projection is correlated or cross-reference to the heart phases in the successive cardiac cycles, this allows images captured to have better time resolution (images of the cycle) and images that correspond to one another to allow reconstruction***);

a step of controlling an image data collection starting position such that the time range matches the image data collection range (***Yavuz, Fig. 12, Fig. 4A and Fig. 4B, Column 6, Lines 16-25, Column 2, Lines 22-44, 63-67, Column 3, lines 1-8, Column 10, Lines 43-67, and Column 11, Lines 4-15, part of the imaging process (image data collection position control step)is positioning the subject on a motorized table using control signals from the control system, and the EKG is used to collect time (electrocardiographic) data which is matched with the collected image scans to allow the projections to be related for the reconstruction of stacked slice images or reconstruction of a three-dimensional model***) and

a step of starting the image data collection from the image data collection starting position (***Yavuz, Fig.5, Column 10, Lines 1-52, collects the image data at a starting point***). However, Yavuz acknowledges it would be desirable to obtain an improved time

resolution, however is silent to obtaining a time range so that the time resolution is within the desired range based also on a relationship among a time resolution of an image obtained, image data collection conditions and periodic motion.

Enter, Pan (WO 02/26135) who discloses a method of improving cardiac imaging by reducing the temporal window (*time range*) to enhance the temporal resolution, the calculation of the temporal window is a function of heart rate (bpm) (*periodic motion*) and gantry rotation speed (*image data collection conditions*) as described in paragraphs [0034] – [0038]. Pan uses this temporal window calculation (*starting position- aligning*) for controlling the image reconstruction of the moving objection (*heart*) see [0006] – [0008], resulting in a substantial improvement in resolution.

Hence the prior art includes each element claimed, although not necessarily in a single prior art reference, with the only difference between the claimed invention and the prior art being the lack of actual combination of the elements in a single prior art reference.

It would have been obvious to one of ordinary skilled and creativity in the art at the time of inventions to modify the method of Yavuz, by including the necessary hardware and software to perform a method of improving cardiac imaging by reducing the temporal window (*time range*) to enhance the temporal resolution, the calculation of the temporal window is a function of heart rate (bpm) (*periodic motion*) and gantry rotation speed (*image data collection conditions*) and the controlling the image reconstruction of the moving objection (*heart*) see [0006] – [0008] based on the temporal window for the result of a substantial improvement in resolution for cardiac

imaging, according to the teaching of Pan. The modification to Yavuz could be made by known techniques, with no changes to the individual technique of Pan, and the results would be highly predictable.

The combination has a reasonable expectation of success in that the modifications can be made using conventional and well known engineering and/or programming techniques. The resultant combination produces the highly predictable result of imaging a periodic moving object (for example, a heart) with an improved time resolution, where the time range is based also on a relationship among a time resolution of an image obtained, image data collection conditions and periodic motion.

As to Claim 2 the combination of Yavuz and Pan teach the image data collection control method according to claim 1, further comprising: a projected image obtaining step of obtaining a projected image of the object (***Yavuz, Fig. 10, el 1010, Column 14, Lines 21-40, collect a projected image of an object***), and an image data collection range designating step of designating the image data collection range based on the projected image (***Yavuz, Fig. 10, Column 14, Lines 21-40, el 1020, determines to collect a set of projection view image at selected view angles of an object based on the projection data***).

As to Claim 3, the combination of Yavuz and Pan teach the image data collection control method according to claim 2, wherein in the image data collection range designating step, the image data collection range is designated by designating a

starting position and an end position of collection of the image data in the projected image (**Pan, [0034] – [0038]** ***where the collection conditions include (rotation speed), temporal resolution, periodic movement (for example of the heart)***).

As to Claim 11, the combination of Yavuz and Pan teach the image data collection control method according to claim 1, further comprising: a step of determining a suitable change of the periodic motion data such that the image data of the image data collection range has the time resolution within the desired range, and a step of displaying a change of the periodic motion data with time and the suitable change range (***Yavuz, Column 10, Lines 33-50, Column 11, Lines 30-50, using the method, data sectoring where the projection view from multiple heart cycles are correlated (Suitable change) to a particular heart phase by cross-referencing the timing formation from the EKG (the periodic motion data) , the reconstruction of a single slice (image data collection range) though the heart with fine resolution in time (time resolution)*** **(Pan, [0034] – [0038]** ***where the collection conditions include (rotation speed), temporal resolution, periodic movement (for example of the heart)***).

As to Claim 12, the combination of Yavuz and Pan teach the image data collection control method according to claim 11, wherein a combination of the suitable change and a speed of the relative movement is calculated in the image data collection

condition setting step, and the image data collection range and a collection position of the image data are relatively moved in the image data collection position control step (**Pan, [0034] – [0038]** ***where the collection conditions include (rotation speed), temporal resolution, periodic movement (for example of the heart)***).

As to Claim 13, the combination of Yavuz and Pan teach the image data collection control method according to claim 11, wherein the periodic motion data obtaining step is repeated until the change of the periodic motion data fails below a predetermined value (***Yavuz, Fig. 11 A -C, Column 10, Lines 43-67, Column 15, Lines 20-40, Column 2, Lines 22-44, Lines 63-67, Column 3, Lines 1-8, and Column 11, Lines 4-15, EKG collects the motion data (electrocardiographic) which is added to the collected image scans for the duration that the scan was collect to provide information to correspond other scans with the same cardiac period, the data would not be stored after the collection has ended, therefore it is inherent that the recording of the EKG signal is repeated until the cardiac cycle ends ( or the periodic motion falls below (enters a new cycle))***).

As to Claim 16, Yavuz teaches an image data collection system for collecting multiple pieces of image data from an image data collection range including a periodically moving part of an object to be examined, the system comprising:

a periodic motion data obtaining means for obtaining periodic motion data indicating a change of a periodic motion with time (**Yavuz, Fig.5, Column 10, Lines 1-52, Column 11, Lines 4-10, Columns 2, Lines 5-15, 32-44, 53-59, Column 8, Lines 19-30 the EKG data is collected which provides time info that indicates a change in periodic motion, which allow the sensor to acquire correlated images of a heart beating (periodic motion), the data collected represents the heart in all difference phases of the cardiac cycle (periodic motion with time)**);

an image data collection condition setting means for obtaining a time range so that the time resolution is within the desired range on an image data collection condition based on the periodic motion data (***Yavuz, Fig.5, Column 10, Lines 43-67, and Column 11, Lines 4-10 the collection time of the electrocardiographic data is correlated to the EKG (periodic motion) which provides time info regarding which projection is correlated or cross-reference to the heart phases in the successive cardiac cycles, this allows images captured to have better time resolution (images of the cycle) and images that correspond to one another to allow reconstruction***); and an image data collecting means for starting the image data collection from the image data collection starting position(***Yavuz, Fig.5, Column 10, Lines 1-52, collects the image data at a starting point***). However, Yavuz acknowledges it would be desirable to obtain an improved time resolution, however is silent to obtaining a time range so that the time resolution is within the desired range based also on a relationship among a time resolution of an image obtained, image data collection conditions and periodic motion within a desired range, and an image data

collection position control means for controlling an image data collection and starting position data such that the time range matches the image data collection.

Enter, Pan (WO 02/26135) who discloses a method of improving cardiac imaging by reducing the temporal window (*time range*) to enhance the temporal resolution, the calculation of the temporal window is a function of heart rate (bpm) (*periodic motion*) and gantry rotation speed (*image data collection conditions*) as described in paragraphs [0034] – [0038]. Pan uses this temporal window calculation (*starting position- aligning*) for controlling the image reconstruction of the moving objection (*heart*) see [0006] – [0008], resulting in a substantial improvement in resolution.

Examiner refers applicant to the rationale for the combination found above in Claim 1.

As to Claim 20, the combination of Yavuz and Pan teach the image data collection system according to claim 16, wherein the image data collecting means is an X-ray CT apparatus comprising:

an X-ray source for emitting an X-ray (***Yavuz, Fig.1, el 114, Column 7, lines 20-30***), an X-ray detector which is opposed to the X-ray source with the object being interposed between the X-ray source and the X-ray detector and detects the x-ray to output X-ray transmission data (***Yavuz, Fig.1, Fig. 7,Fig. 3, el 136, Column 7, Lines 20-30,Column 12, Lines 20-30***), a rotating means capable of rotating with the X-ray source and the X-ray detector, a table on which the object is laid (***Yavuz, Fig.1, Fig. 7,Fig. 3, Column 7, Lines 50-65, Column 12, Lines 20-30, Lines 54-64***), a table controller for controlling a table moving speed for moving the table (***Yavuz, Fig.1, Fig.***

***7,el 746, Fig. 3, Column 7,lines 30-40***) (**Flohr, [0007], [00015], [0034], [0035], [0062]**), an image processing means for generating a tomogram of the object based on the X-ray transmission data (***Yavuz, Fig.1, Column 2, Lines 6-15, Column 8, Lines 10-30***), and a display means for displaying the tomogram (***Yavuz, Fig.1, el 142, 140, Column 8, Lines 10-30***), the periodic motion data obtaining means is a heart rate meter for measuring and obtaining a heart rate of the object (***Yavuz, Fig.1, el 160, Column 10, Lines 42-52, Column 11, Lines 4-10, Columns 2, Lines 5-15, 32-44, 53-59, Column 8, Lines 19-30, EKG unit, is used to measure the heart rate of the patient***), the image data collection condition setting means calculates a combination of a change of the periodic motion data and the table moving speed to obtain the desired time resolution (***Yavuz, Column 5, Lines 36-54, 66-67, Column 6, Lines 1-15, Lines 44-54, Column 7 Lines,29-39, Column 12, Lines 54-64***), and the table controller moves the table according to the table moving speed (***Yavuz, Column 5, Lines 36-54, 66-67, Column 6, Lines 1-25, Lines 44-54, Column 7 Lines,29-39, Column 12, Lines 54-64, a controller sends a signal to the motorized bed to translate the table to move the subject relative to the source***)

***B.) Claims 4-5, 10 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Pan and further in view of Siemens Medical (HeartView CT Application Guide by Siemens Medical, Software Version* syngo *CT 2005A, ©2002-2004, Siemens AG Order No. C2-023.630.11.03.02 Printed in Germany 09/04, hereinafter Siemens)).***

As to Claim 4, the combination of Yavuz and Pan teach the image data collection control method according to claim 2, wherein the image data collection condition setting step includes, before the image data collection range designating step, a time resolution estimating step of estimating a fluctuation in a time resolution of the image data with time based on the periodic motion data, and in the image data collection range designating step, (***Pan, Fig.11, [0031], demonstrates a graph showing the relation (indicating fluctuation) between (estimated) temporal resolutions for an image (time resolution) based on part of the object with time information ( heart – bpm)***). However, the combination is silent to the superimposing of a time resolution graph and the projected image.

Siemens teaches the importance of superimposing or overlaying relevant information onto a medical image (see pages 140, 106, 29, 38, 43), the use of overlaying graphics and other images over the medical images is to assist the user to make aware of information by selection, highlighting, and/or the presentation of information.

It would have been obvious to one of ordinary skilled in the art at the time of inventions to modify the method of the combination of Yavuz and Pan, by including a step of superimposing the time resolution graph of Pan and combining that image with the CTimage collected by Yavuz following the motivation of Siemens for combining relevant information with the CT image. The modification to the combination of Yavuz and Pan could be made by known techniques, with no changes to the individual technique of Siemens, and the results would be highly predictable (the graphs superimposed onto the CT image for display).

The combination has a reasonable expectation of success in that the modifications can be made using conventional and well known engineering and/or programming techniques, the superimposing of one image onto another is well known in the field, as evidenced by Siemens, further Siemens is not altered and continues to perform the same function as separately, and the resultant combination produces the highly predictable result of combining/superimposing the time resolution information onto the CT image.

As to Claim 5, the combination of Yavuz, Pan, and Siemens teach the image data collection control method according to claim 4, wherein in the image data collection range designating step, the desired time resolution range in the time resolution graph is superimposed so as to correspond to the image data collection range in the projected image (**Siemens pages 140, 106, 29, 38, 43, superimposing or overlaying relevant (corresponding) information onto a medical image**).

As to Claim 10, the combination of Yavuz, Pan, and Siemens teach the image data collection control method according to claim 4-, wherein in the image data collection position control step, the image data collection range and the image data collection position are relatively moved so as to keep a positional relationship between an elapsed time in the time resolution graph and the image data collection range in the projected image, and the relative movement and the image data collecting step are simultaneously performed (***Pan, Fig.11, [0031], demonstrates a graph showing the relation (indicating fluctuation) between (estimated) temporal resolutions for an image (time resolution) based on part of the object with time information ( heart – bpm)***), **which is used to *estimates the time resolution based on the collection conditions include (table speed), temporal resolution, periodic movement (for example of the heart)***).

As to Claim 17, the combination of Yavuz and Pan teach the image data collection system according to claim I6, wherein the image data collection condition setting means estimates a fluctuation in the time resolution of the image data with time based on the periodic motion data before designating the image data collection range (***Pan, Fig.11, [0031], demonstrates a graph showing the relation (indicating fluctuation) between (estimated) temporal resolutions for an image (time resolution) based on part of the object with time information ( heart – bpm)***). However, the combination is silent the image data collection condition setting means

superimposes a time resolution graph and the projected image, the time resolution graph indicating the fluctuation in the time resolution of the image data.

Siemens teaches the importance of superimposing or overlaying relevant information onto a medical image (see pages 140, 106, 29, 38, 43), the use of overlaying graphics and other images over the medical images is to assist the user to make aware of information by selection, highlighting, and/or the presentation of information. (See same motivation for Claim 4 above)

***C.) Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pan in view of Yokogawa Medical Systems, (JP 2001-212137 as evidenced by a machine translation, hereinafter Yokogawa). Yokogawa was provided by applicant in an IDS filed on 12/01/2010.***

As to Claim 22, Pan (WO 02/26135) discloses an image data collection system for collecting image data in an image data collection range including a periodically moving part of an object to be examined (***Pan, Fig.1, Fig.2, abstract***), the system comprising:

a device (***Pan, Fig.2, el 42***) for displaying a graph indicating fluctuations in an estimated time resolution of an image obtained on a part of the object with time information (***Pan, Fig.11, [0031], demonstrates a graph showing the relation (indicating fluctuation) between (estimated) temporal resolutions for an image (time resolution) based on part of the object with time information ( heart – bpm)***), in advance of image data collection.

However, Pan is silent to displaying the above graph with a projected image of the object.

Enter, Yokogawa Medical Systems, (JP 2001-212137), which discloses collecting a projected image in advance to an image data collected, specifically, recommending the collected of a scout image (*Projected image*) in advance of a scan for plan processing (see paragraphs [0003] – [0006]), further disclosing the importance of monitoring the subject's holding time, breathing time (*time information*) [0006], [0023], and as demonstrated in Figure 8, a display shows both the projected image along with the time information (set-up). Yokogawa displaying of both the projected image and time information in advance of an image data collection serves to assistant the physician to view for verification and control the subjected breath holding breathing plan without requiring the switching to different screens (see abstract).

Hence the prior art includes each element claimed, although not necessarily in a single prior art reference, with the only difference between the claimed invention and the prior art being the lack of actual combination of the elements in a single prior art reference.

Thus, It would have been obvious to one of ordinary skilled and creativity in the art at the time of inventions looking at the teachings, suggestions, and the inferences to be expected to draw therefrom from the disclosure of Pan to provide an improved the system for displaying information (a graph indicating fluctuations in an estimated time resolution of an image obtained on a part of the object with time information with a projected image in advance of an image data collection in view of Yokogawa disclosure

of displaying a scout image (projected image) along with timing, breathing, CT scanner information as demonstrated in Figure 8.

The modification to Pan could be accomplished by adding the displaying of a scout image along with the Pan's graph indicating fluctuations in an estimated time resolution according to the teaching of Yokogawa to obtain the invention as specified in the claim. Further a person of ordinary skill and creativity in the art would have recognized the compatibility of displaying a scout image (projected image) along with a graph indicating fluctuations in the estimated time resolution. The combination has a reasonable expectation of success in that the modifications can be made using conventional and well known engineering and/or programming techniques, One of ordinary skilled and creativity in the art would have been motivated to combine the teachings of Yokogawa to the system/apparatus of Pan in order to assistant the physician to view for verification and control of the image data collection.

**Comment on 35 USC § 101**

Independent claim 1 is a "process" claim and has been analyzed in light of *Bilski et al v. Kappos* [11], and the relevant guidance [2], [3]. The independent claim is not directed

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1 *See Bilski et al v. Kappos (SCt. 08-964),*

2 *See Memorandum to the Examining Corps, Regarding the Supreme Court Decision in Bilski v. Kappos, issued June 28, 2010, available at http://www.uspto.gov/patents/law/exam/memoranda.jsp*

3 *See Interim Guidance for Determining Subject Matter Eligibility for Process Claims in View of Bilski v. Kappos, Federal Registrar, Vol. 75, No. 143, issued July 27, 201*

to an abstract idea. Furthermore, the independent claim tangibly implements the method at least because a processor or equivalent hardware is necessary to perform the claimed "obtaining a time range so that the time resolution is within the desired range", and "controlling an image data collection starting position". Therefore, based upon consideration of all the relevant factors[3] with respect to the claim as a whole, claim 1 and its dependents are not directed to an abstract idea.

Regarding Claim 16, the claim is in a system claim, and is statutory since it recites "periodic motion data obtaining means image data for", "collection condition setting means for", "image data collection position control means for", and "image data collecting means for", which invoke 35 U.S.C 112, 6th Paragraph "means plus language" and hence is statutory.

Regarding Claim 22, the claim is in a system claim, and is defined in terms of "a device for displaying a graph". Given the broadest reasonable interpretation of claim 22 in light of the specification and consistent with a conclusion reached by one of ordinary skill in the art, the claimed "device " is construed by the examiner as a hardware based device containing software, such as a computer or one or more computer components. Claim 22 is therefore drawn to a statutory machine.

## Allowable Subject Matter

Claims 6, 7, and 8 were objected to in the previous office action(s) as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The reasons for allowance of these claims are found in the final office action sent on 06/04/2010.

## Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kaufman; Leon et al., US 7006862 B2, Graphical user interfaces and methods for retrospectively gating a set of images

Kaufman; Leon et al., US 7142703 B2, Methods and software for self-gating a set of images

Kaufman; Leon et al., US 7209779 B2, Methods and software for retrospectively gating a set of images

Tsuyuki; Masaharu, US 7251308 B2, X-ray computed tomography apparatus

Burrell; Marc Anthony et al., US 7308299 B2, Method, apparatus and product for acquiring cardiac images

Watanabe; Motoki, US 7421057 B2, X-ray CT apparatus and method of controlling the same

## Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Heidemann:

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- fax (571) 270-6173, or
- e-mail jason.heidemann@uspto.gov.

The examiner can normally be reached on Monday - Thursday/7:30 A.M. to 5:00 P.M.. For e-mail communications, please note MPEP 502.03, which states, in relevant part, "[w]ithout a written authorization by applicant in place, the USPTO will not respond via Internet e-mail to any Internet correspondence which contains information subject to the confidentiality requirement as set forth in 35 U.S.C. § 122." A sample authorization form which may be used by applicant can be found in MPEP 502.03 section II.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on 571-272-7778. The fax phone numbers for the organization where this application or proceeding is assigned are 571-273-8300

for regular communications and 571-273-8300 for After Final communications. TC 2600's customer service number is 571-272-2600.

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/Jason Heidemann/ 02/20/2011
Examiner, Art Unit 2624

/Sath V. Perungavoor/
Sath V. Perungavoor
Primary Examiner, Art Unit 2624
Dated: February 28, 2011